

## SEVERE LOCAL STORMS, JANUARY 1944

(Compiled by Mary O. Souder)

[The table herewith contains such data as has been received concerning severe local storms that occurred during the month. A revised list of tornadoes will appear in the United States Meteorological Yearbook]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks
Oklahoma	7-8					Snow	Snowfall which occurred mostly on the 7th and 8th, averaged 6.2 inches for the State. In only 3 of the past 44 years has the January snowfall been heavier. Main highways were blocked and secondary roads remained badly drifted for days. Traffic accidents were numerous.
Texas	13-14				\$16,000,000	Glaze	A heavy accumulation of glaze caused tremendous damage to east Texas timberlands surrounding Lufkin and caused much damage to utility poles and wires in east-central portions of the State. Damage due to stripping of timber was estimated at \$16,000,000, but no estimate on damage to utilities was obtainable.
Helena, Mont.	17					Wind	Maximum velocities reported by the first-order Weather Bureau stations were from 40 to 56 miles per hour. Only minor damage to power and telephone lines, fences, signboards, and buildings. Reports from the area around Havre indicate that there was some damage to exposed winter wheat, amount not estimated.
Nebraska, extreme western and central portions.	26-27				100,000	Snow, wind, rain, and ice.	Greatest damage to telephone and other wires in central portion of the State. In the western part, considerable delay was experienced by motorists where roads were closed by drifts. 27 persons injured; property damaged.
Oklahoma, central and western portions.	26-27	P. M.		2	155,000	Tornadoes and wind-storms.	
South Dakota	26-28			1		Heavy rain, snow, and high wind.	Rain and snow, accompanied by near freezing temperature and high wind, blocked traffic, closed some schools, delayed railroad and bus service, and damaged telephone and power lines. A man died of exhaustion due to bad drifts at the Army Air Base in Rapid City.

## SOLAR RADIATION AND SUNSPOT DATA FOR JANUARY 1944

[Solar Radiation Investigations Section, I. F. HAND, in charge]

## SOLAR RADIATION OBSERVATIONS

**M**EASUREMENTS of solar radiant energy received at the surface of the earth are made at 10 stations maintained by the Weather Bureau and at 17 stations maintained by other institutions. The intensity of the total radiation from sun and sky on a horizontal surface is continuously recorded (from sunrise to sunset) at all these stations by means of self-registering instruments; pyrheliometric measurements of the intensity of direct solar radiation at normal incidence are made at frequent intervals on clear days at three Weather Bureau stations (Madison, Wis., Lincoln, Nebr., and Albuquerque, N. Mex.), and at the Blue Hill Observatory of Harvard University.

Table 1 contains the measurements of the intensity of direct solar radiation at normal incidence, with means and their departures from normal (means based on less than 3 values are in parenthesis). At Lincoln, Madison, Albuquerque, and Blue Hill the observations are obtained with a recording thermopile, checked by observations with a Smithsonian silver-disk pyrheliometer at Blue Hill. The table also gives vapor pressures at 7:30 a. m. and at 1:30 p. m. (75th meridian, E. S. T.).

Early in December 1943, an Eppley ten-junction pyrheliometer and a Leeds and Northrup micromax potentiometer were installed on top of one of the greenhouses of the Department of Horticulture, University of Missouri, Columbia, Mo. The equipment will be under the immediate supervision of Prof. A. E. Murneek, who intends to study the relationship between solar radiation values and the growth of tomato plants treated with hormones. All apparatus has been standardized and placed on the Smithsonian Scale of Pyrheliometry.

Prof. George O. G. Lof of the University of Colorado has installed radiation equipment to measure total solar and sky radiation at Boulder, Colo., in order to correlate insolation with house heating by solar energy. This station has the greatest elevation of any of those whose data appear regularly in the MONTHLY WEATHER REVIEW.

Solar radiation equipment has been installed also at the University of Los Angeles, under the direction of Prof. Charles P. Hedges.

In order to study the effect of atmospheric contamination, an Eppley ten-junction pyrheliometer and a Leeds and Northrup micromax potentiometer were recently installed at the city office of the Weather Bureau in Boston. This new site is 10 miles north of Blue Hill Observatory. Preliminary data show markedly the effect of city smoke in Boston. On January 18, a day without condensed water vapor clouds but with a heavy smoke pall over the city, the radiation on top of the 19-story Federal Building was less than one-tenth of that at Blue Hill for the hour ending at 9:00 a. m., solar time. The total radiation for the entire day was one-quarter less than that received at Blue Hill during the same period; the percentage loss of the ultraviolet is many times that of the visible or other components. This accounts to a large extent for the much greater percentage of cases of rickets in large industrial cities as compared with smaller towns or open country.

The coordinates of the four new stations are given in table 3.

Table 2 contains the daily amounts of radiation received on a horizontal surface from both sun and sky for all stations except Fairbanks, Alaska; and also the weekly means, their departures from normal and the accumulated departures since the beginning of the year. The values at most of the stations are obtained from the Eppley pyrheliometer, recording either on a microammeter or a potentiometer. If the daily values for total solar and sky radiation at Fairbanks should be desired, they may be obtained approximately 2 months after the date of the observation by writing to the Solar Radiation Investigations Supervisory Station, Blue Hill Observatory, Milton, Mass.

Table 3 gives information about the solar radiation stations which are maintained by, or cooperate with, the Weather Bureau.